CLAIM AMENDMENTS

Please amend the claims as follows (with strikethrough indicating deletions and underlying indicating additions to the claims):

What is claimed is:

1. Cancelled.

2. (Currently Amended)The method of claim ~~1~~ 22, further comprising ~~the step of~~ filtering the horizontal signal~~s~~ for reducing background noise and respiratory artifact and other body movements in accordance with predefined signal frequency band values.

3. (Currently Amended) The method of claim ~~1~~ 22, further comprising ~~the step of~~ identifying the respiration rate.

4. (Currently Amended) The method of claim ~~1~~ 22, further comprising ~~the step of~~ calculating a sum signal comprising ~~the~~ a sum of ~~at least~~ the two vertical pressure signals and filtering and analyzing the calculated sum signal in combination with the horizontal pressure signal for identifying and detecting the heartbeat rate and respiration rate.

5. (Currently Amended) The method of claim ~~1~~ 22, further comprising:

sensing using a plurality of pressure sensors located beneath the subject at different locations, a plurality of vertical pressure signals exhibiting variations over time of vertical pressure applied by the subject on each location;

subtracting at least one vertical pressure signal from another vertical pressure signal thereby creating a plurality of horizontal signal exhibiting horizontal mass movements over time attributed to the subject's blood circulation; ~~the step of~~

selecting the horizontal signal having the largest integral value of all horizontal signals, wherein the identification and detection of the heartbeat rate is based on said selected horizontal signal.

6.(Currently Amended) The method of claim ~~1~~ 22, further comprising ~~the step of~~ calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm.

7. (Previously presented) The method of claim 2 wherein the filtering is achieved by using a high pass filter, wherein the cut off frequency is twice as a pre-defined heartbeat rate.

8. (Previously presented) The method of claim 2 wherein the analyzing includes identifying peak values of the filtered signal.

9. (Currently Amended) The method of claim ~~1~~ 22, wherein at least one sensor is located beneath the lower part of the subject's body and at least one sensor is located beneath the upper part of the subject's body.

10. (Currently amended) The method of claim ~~1~~ 22, wherein the horizontal signal represents the horizontal movements of the subject and the analyzing includes detection of blood circulation.

11. (Currently amended)A system for non-invasive monitoring of subject heartbeat rate, said system ~~comprised of~~comprising:

at least two independent pressure sensors located beneath the subject's body for sensing vertical pressure signals ~~comprising~~ exhibiting variations over time of vertical pressure values at different locations ~~along time~~;

an electronic mechanism for ~~calculating at least one horizontal signal by~~ subtracting at least one vertical signal from another vertical signal thereby creating at least one horizontal signal exhibiting horizontal mass movements over time attributed to the subject's blood circulation ; and

a processing module for analyzing the at least one horizontal signal to identify and detect the heartbeat rate.

12. (Previously presented) The system of claim 11 further comprising a filtering module for reducing background noise of the horizontal signal in accordance with pre-defined signal frequency band values.

13. (Previously presented) The system of claim 11 wherein the processing module further identifies the respiration rate.

14. (Previously presented) The system of claim 11 wherein the electronic mechanism

further calculates the sum signal of at least two vertical signals and the processing module further analyzes the calculated sum signal in combination with the horizontal signal for identifying and detecting the heartbeat rate and respiration rate.

15. (Previously presented) The system of claim 11 wherein the electronic mechanism further selects the horizontal signal having the largest integral value of all horizontal signals , wherein the identification and detection of the heartbeat rate is based on said selected horizontal signal.

16. (Previously presented)The system of claim 12 further comprising a calibration module for calculating the pre-defined signal frequency band values, wherein calibration is based on the FFT algorithm.

17. (Previously presented) The system of claim 11 wherein the filtering module is a high pass filter, wherein the cut off frequency is twice a pre-defined heart rate.

18. (Previously presented) The system of claim 11 wherein at least one sensor is located beneath the lower part of the subject's body and at least one sensor is located beneath the upper part of the subject's body.

19. (Previously presented)The system of claim 12 wherein the analyzing includes identifying peak values of the filtered signal.

20. (Previously presented) The system of claim 11 wherein the horizontal signal represents the horizontal movements of the subject and the filtering and analyzing

includes detection of the blood circulation.

21. (Previously presented) The system of claim 11 wherein the sensors are integrated within a single rigid housing.

22. (New) A method of non-invasive monitoring of a subject heartbeat rate, the method comprising:

sensing using a first pressure sensor located beneath the subject at a first location, a first vertical pressure signal exhibiting variations over time of vertical pressure applied by the subject on the first location;

sensing using a second pressure sensor located beneath the subject at a second location, a second vertical pressure signal exhibiting variations over time of vertical pressure applied by the subject on the second location;

subtracting the first vertical pressure signal from the second vertical pressure signal thereby creating a horizontal signal exhibiting horizontal mass movements over time attributed to the subject's blood circulation; and

analyzing the horizontal signal for extracting the subject's heartbeat rate.